

Water Conservation on New Mexico Farms



Del Jimenez
Agriculture Specialist
Alcalde Science Center



New Mexico Statistics

- Farms and Ranches In New Mexico 25,044 40.6 Million Acres
- Irrigated Farms in New Mexico 10,745
- Irrigated Land in New Mexico 675,330
- Acre Feet Of Water Applied 1,337,807
- Average Acre Feet/Acre 2
- Top Agriculture Commodities in New Mexico \$ 3.4.Billion
 - Dairy Products \$ 1.4 Billion 317,000 Cows\$
 - Cattle and Calves 993.3 Million 1.6 Million Head
 - Pecans \$ 165.1 Million 50,722 Acres\$
 - Hay 211.8 Million 450,000 Acres

Irrigation and Water Use

- **The Agricultural Industry is the Largest Consumer of Ground and Surface Water in the United States.**
- **United States uses 322 Billion Gallons of Water Per Day (Bgal/day).**

The Three Largest Water-Use Categories Are:

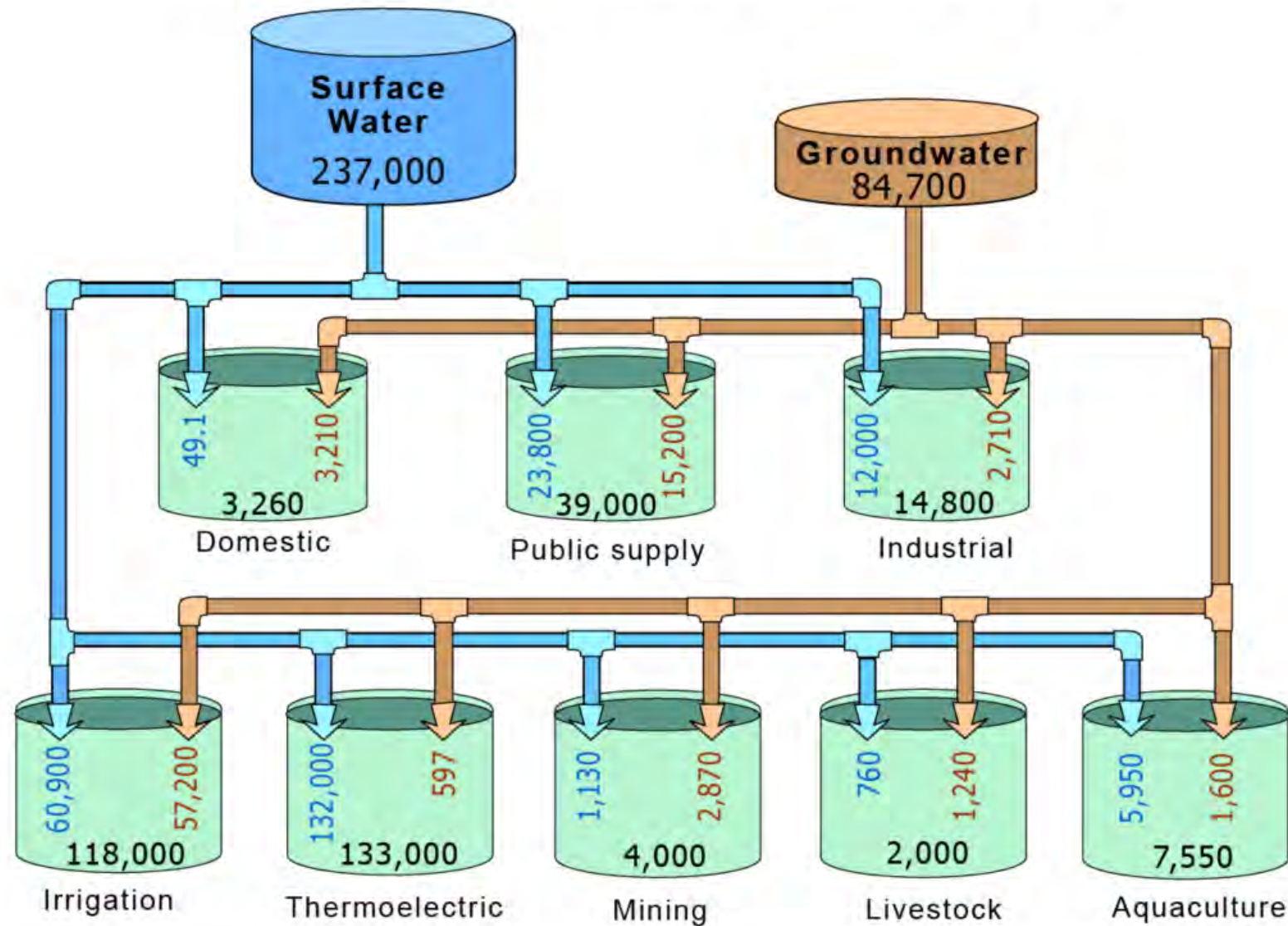
Irrigation (118 Bgal/day)

Thermoelectric power (133 Bgal/day)

Public Supply (39 Bgal/day)

- **Today, that Number is more Relevant than Ever, as 18.8% of the Lower 48 U.S. States are Currently in Drought Conditions..**
- **Water is an Incredibly Valuable National Resource, and Should be Given the Attention that it Deserves.**

Source and use of water in the United States, 2015



Explanation

 1,234 Surface water
 1,234 Groundwater

1,234 Total water use
 Data are in million gallons per day and rounded

Importance of Irrigation In Agriculture

- **Irrigated Farms Account for Half of the Total Value of Crop Sales**
- **28 Percent of U.S. Harvested Cropland is Irrigated.**
- **Irrigated Farms also Support the Livestock and Poultry Sectors Through Irrigated Production of Animal Forage and Feed Crops.**
- **56 Million Acres—or 7.6 Percent of All U.S. Cropland and Pastureland are Irrigated.**
- **Nearly Three-Quarters of Irrigated Acres are in the 17 Western-Contiguous States.**
- **Irrigated Acres Declined by Nearly 0.8 million Acres across the United States.**
- **Most of the area decline occurred in the Western United States where drought conditions contributed to water-supply scarcity across the region.**

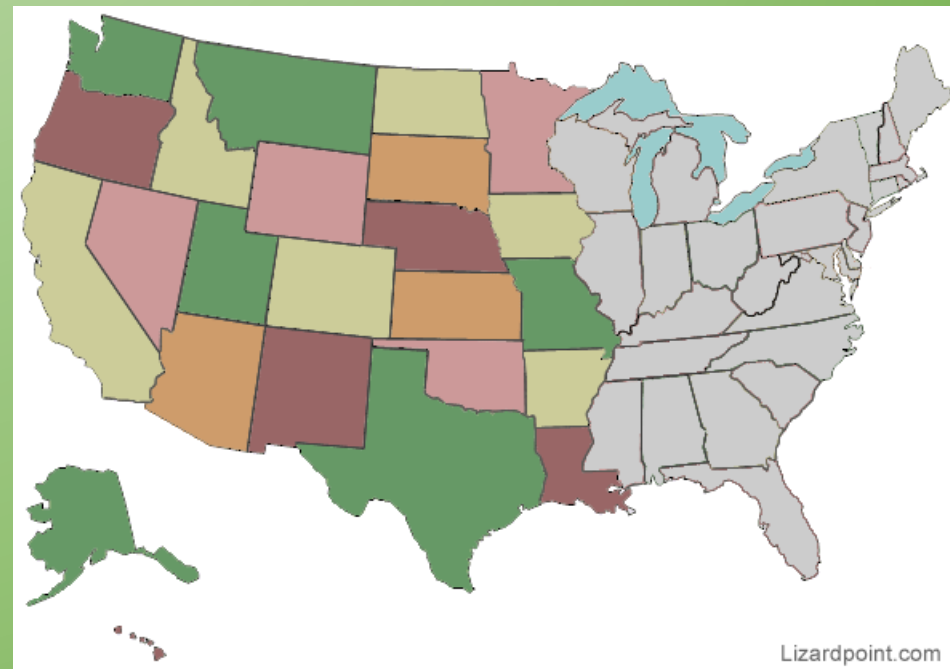
Where is Irrigation Used

- **Over four-fifths occurring in the Western States**
- **Irrigated agriculture applied 88.5 million acre-feet of water nationally.**
- **The U.S. Geological Survey (USGS), which monitors water use by economic sector, estimates that irrigated agriculture accounted for 38 percent of the Nation's freshwater withdrawals.**
- **Agriculture accounts for approximately 80 to 90 percent of U.S. consumptive water use.**



States that Irrigate The Most

• Nebraska	8.3 Million Acres	14.8
• California	7.9 Million Acres	%14.1
• Arkansas	4.8 Million Acres	%8.6
• Texas	4.5 Million Acres	%8.0
• New Mexico	695 Thousand Acres	%





What Is Irrigation

Irrigation is the artificial application of water to the soil through various systems of tubes, pumps, and sprays.

Irrigation is usually used in areas where rainfall is irregular or dry times or drought is expected.

There are many types of irrigation systems, in which water is supplied to the entire field uniformly.



Water Conservation Practices

- **Capturing and Storing Water**
- **Irrigation Scheduling**
- **Drought-Tolerant Crops**
- **Dry Farming**
- **Cover Crops**
- **Rotational Grazing**

Water Sources

- Well
- Spring
- Pond
- Lake or Reservoir
- Acequia



Flood Irrigation

- Earliest form of Irrigating
- Water Flows over the Ground and Through the Crop
- Effective Way to Irrigate
- Not Efficient
- More Environmentally Friendly

Flood Irrigation



Furrow Irrigation



Gated Irrigation



Sprinkler Irrigation

- Use of a Sprinkler Head that Sprays Water to Assimulate Rain Coming Down on your Crop.
- Applies Water On All Types of Land Topography
- Water Patterns are Uniform
- Water Loss is Minimum

Center Pivot



Field Sprinkler



Traveling Gun



Drip Irrigation

- Drip irrigation systems deliver water directly to the Plant Base and Plant's Roots, Reducing the Evaporation that Happens with Spray Watering Systems
- Most Efficient Water and Nutrition Delivery System For Growing Crops
- Surface and Sub-Surface Piping

Surface Drip




Spray Drip



Sub-Surface Drip





Water Numbers

- Gallon of Water = 8.3 Pounds
- Acre Inch = 27,154 Gallons
- Acre-Foot of Water = 325,851 Gallons
- 1 Acre = 43,560 Ft.² = 208.7' Feet x 208.7' Feet
- 3% of Total Water is Fresh Water

Water Use / Pound of Product


• Beef	1857 Gallons of Water
• Chicken	467
• Cheese	599
• Rice	403
• Wheat Bread	154
• Corn	107
• Apples	83
• Cucumbers	28
• Tomatoes	22
• Lettuce	15





Countries With Most Renewable Fresh Water Resources

• Brazil	8233
• Russia	4508
• United States	3069
• Canada	2902
• China	2840
• Columbia	2132
• European Union	2057
• Indonasia	2019



Mark Twain

**“Whiskey Is For Drinking;
Water Is For Fighting Over.”**

**Water Has Always Been The First And Most
Precious Resource For Any Community**